**Kelly G. Waugh, PT, MAPT, ATP**

Clinic Coordinator | Research Senior Instructor

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HISTORY

Ms. Waugh is a RESNA certified Assistive Technology Professional (ATP) with 38 years of clinical experience as a physical therapist and educator, specializing in the areas of Wheelchair Seating & Mobility and Nighttime Positioning. In addition to serving as Clinic Coordinator, Ms. Waugh continues to provide wheelchair seating and mobility assessments, fittings and consultations for children and adults with a variety of disabilities, as well as nighttime positioning assessments for children and adults with severe motor impairment. Ms. Waugh has been actively involved in [*RESNA - The Rehabilitation Engineering and Assistive Technology Society of North America*](http://www.resna.org) for many years, serving on a variety of committees and task groups.  Ms. Waugh has served as chair of both the RESNA and the International Organization of Standards (ISO) Wheelchair Seating Standards Working Groups that developed an international standard for the measurement of wheelchair seated posture and seating support parameters. She authored and published a Clinical Application Guide to this international standard on body and seat measures in 2013.

EDUCATION

1982 **Stanford University School of Medicine**, Stanford, California

Master of Arts Degree in Physical Therapy

1979 **Stanford University,** Stanford, California  
Bachelor of Arts Degree in Human Biology

ACADEMIC APPOINTMENTS

2014-present **Senior Research Instructor/Clinic Coordinator**

Center for Inclusive Design and Engineering,Department of Bioengineering, College of Engineering, Design and Computing, University of Colorado Denver | Anschutz Medical Campus, Denver, Colorado

2008-2014 **Senior Instructor/Clinic Coordinator**

Assistive Technology Partners**,** Department of Physical Medicine and Rehabilitation, School of Medicine, University of Colorado Anschutz Medical Campus, Denver, Colorado

2007 -2008 **Senior Instructor/Assistive Technology Specialist**

Assistive Technology Partners**,** Department of Physical Medicine and Rehabilitation, School of Medicine, University of Colorado Denver, Denver, Colorado

2005 - 2007 **Instructor/Assistive Technology Specialist**

Assistive Technology Partners**,** Department of Physical Medicine and Rehabilitation, School of Medicine, University of Colorado at Denver and Health Sciences Center, Denver, Colorado

2004 – 2005 **Clinical Instructor/Assistive Technology Specialist**

Assistive Technology Partners**,** Department of Physical Medicine and Rehabilitation, School of Medicine, University of Colorado at Denver and Health Sciences Center, Denver, Colorado

PROFESSIONAL POSITIONS

2003 - 2004 **Physical Therapist**

Sleep Positioning Clinic, The Children’s Hospital of Denver, Denver, Colorado

2000 - 2004 **Physical Therapist/Consultant**

Private practice, providing educational programs and clinical consulting on a contract basis, Mountainside, New Jersey and Louisville, Colorado

1992 - 2001 **Physical Therapist / Wheelchair Seating Specialist**

Rehabilitation Technology Department, Children's Specialized Hospital, Mountainside, New Jersey

1992 - 1995 **Physical Therapist**

ARC Day Training Center, Maplewood, New Jersey

1990 - 1993 **Physical Therapist/Therapeutic Equipment Specialist**

Therapeutic Concepts, Inc., Wyoming State Training School, Lander, Wyoming.

1992 **Physical Therapist**

Elizabeth General Healthcare Corporation, Linden Public Schools, Linden, New Jersey.

1990 - 1992 **Physical Therapist**

Union County Day Training Center, Scotch Plains, New Jersey

1988 - 1990 **Physical Therapist**

These Our Treasures, Inc., Bronx, New York

1987 - 1988 **Physical Therapist**

United Developmental Services, Hanover, New Hampshire

1984 - 1986 **Physical Therapist/Therapeutic Equipment Specialist**

O'Neall and Associates, Ltd., Tallahassee, Florida

1983 - 1984 **Physical Therapist**

Spaulding Rehabilitation Hospital, Boston, Massachusetts

1982 - 1983 **Physical Therapist**

W.E. Fernald State School, Waltham, Massachusetts

HONORS/SPECIAL RECOGNITIONS/AWARDS

* **Invited Speaker,** Oceania Seating Symposium, Melbourne, Australia, November 12-14, 2019
* **Invited Speaker,** Columbia Seating Symposium, Medellin, Columbia,August 1-3, 2018
* **Invited Speaker,** Oceania Seating Symposium, Rotorua, New Zealand, November 20-22, 2017
* **Appointed U.S. Technical Expert**, International Standards Organization (ISO) Technical Committee 173/Sub Committee 1/Working Group 11 Wheelchair Seating, 2011
* **Certificate of Appreciation,** Rehabilitation Engineering and Assistive Technology Society of North America (RESNA), for contributions on the Seating and Mobility Specialty Credential Ad Hoc Committee, 2007
* **Invited participant, The 2006 Mobility RERC State of the Science Conference.** World Congress Center, Atlanta, Georgia, September 17-18, 2006
* **Letter of Appreciation**, Professional Standards Board of the Rehabilitation Engineering and Assistive Technology Society of North America (RESNA), for contribution to the construction of RESNA’s first ATP/ATS certification examination as a member of the Test Development Committee, 1996
* **The Marian Williams Memorial Scholarship Award in Physical Therapy,** Stanford University School of Physical Therapy, 1982

MEMBERSHIPS IN PROFESSIONAL ORGANIZATIONS

1985-present **Rehabilitation Engineering and Assistive Technology Society of North America (RESNA)** Member, 1985-present

Member, Special Interest Group-09 Seating and Wheeled Mobility, 1985 to present

Member, Technical Standards Board, 1998 to present

Member, Standards Committee on Wheelchairs and Related Seating, 1998 to present

Member, Education Committee 1994-1995

1981-2008 **American Physical Therapy Association**

MAJOR COMMITTEE AND SERVICE RESPONSIBILITIES

2013-present **Clinician Task Force (CTF),** Active Member. This national professional committee is comprised of the nation’s most experienced and respected seating and mobility clinicians working to improve Medicare coverage guidelines for mobility devices such as wheelchairs. Since early 2011 the CTF has focused efforts on the need for appropriate access and funding for Complex Rehab Technology for people with disabilities

1998 -present **International Standards Organization (ISO) Technical Committee 173/Sub Committee 1/ Working Group 11 Wheelchair Seating**, Active Member, U.S. Technical Expert since 2011

1998-present **Standards Committee on Wheelchairs and Related Seating**, Active Member, Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) Assistive Technical Standards Board (ATSB), Washington, DC

2006 - 2013 **ISO TC 173/SC1/WG11, Clinical Application Guide Task Group 16840-8,** Chair, International Standards Organization (ISO)

2008 - 2009 **Wheelchair Service Provision Guide Task Group,** Member, Rehabilitation Engineering and Assistive Technology Society of North America (RESNA)

2006 – 2007 **Seating and Mobility Specialty Credential Ad Hoc Committee,** Member, Rehabilitation Engineering and Assistive Technology Society of North America (RESNA)

2001 - 2006 **ISO TC173/SC1/WG11, Break-Out Group on Body and Seat Measures,** Active Member, International Standards Organization (ISO)

1998 – 2001 **ISO TC173/SC1/WG11, Break-Out Group on Terms and Definitions,** Chair,International Standards Organization (ISO)

1996 **Test Development Committee**, Invited Member, Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) Credentialing Program

Local Professional Advocacy Activities

2014 **Advocacy/Policy – Access to Complex Rehab Technology Legislation.** Provided review and comments to draft House Bill (HB) 14-1211 “Complex Rehabilitation Technology (CRT)”, legislation that eventually passed in Colorado in 2014 (House Bill (HB) 14-1211), improving access to CRT for people with disabilities in Colorado

2014 **Advocacy/Policy-CPT Code Rate Increase.** Submitted a proposal to Colorado Healthcare Policy and Financing (HCPF) for a targeted increase in reimbursement rates for specific therapy services related to assessing individuals for complex rehabilitation and assistive technology. Proposal accepted and approved, and rate increase become effective July 2014.

2013-2014 **Advocacy/Policy – Assistive Technology Services Billing Policy.**  Working with the Colorado Healthcare Policy and Financing (HCPF), instrumental in facilitating a change in Medicaid’s reimbursement and billing policy for the provision of clinical assistive technology services. This policy change established new billing procedures for use of the Assistive Technology Assessment Procedure Code 97755, allowing for improved reimbursement for complex assistive technology assessments and services provided to Medicaid beneficiaries with significant disabilities by specialized Physical, Occupational and Speech Therapists. Colorado Medicaid Provider Bulletin #B1400356, September 2014

LICENSURE & BOARD CERTIFICATIONS

1982-present **Physical Therapy license.** Current in state of Colorado; past licensure in California, Massachusetts, New York, New Jersey, New Hampshire, Wyoming, Florida.

2007-present **Assistive Technology Professional certification,** Rehabilitation Engineering and Assistive Technology Society of North America (RESNA)

REVIEW AND REFEREE WORK

2016 *Assistive Technology Journal*, "Effects of Adjustments to Wheelchair Backrest Angle on Head, Neck, and Shoulder Postures in Abled Subjects", Ad-Hoc Manuscript Reviewer

2015 *Assistive Technology Journal*, "Comparison of the Inertial Properties and Forces Required to Initiate Movement for Three Gait Trainers", Ad-Hoc Manuscript Reviewer

2014 *Journal of Rehabilitation Research & Development*, “Development and Initial Validation of the Seated Posture Scale”, Ad-Hoc Manuscript Reviewer

2013 *Disability and Rehabilitation: Assistive Technology,* “Assessing head and trunk symmetry during sleep using tri-axial accelerometers", Ad-Hoc Manuscript Reviewer

*Assistive Technology Journal*, “RESNA Position on the Application of Wheelchairs, Seating Systems and Secondary Support for Positioning vs. Restraint”, Ad-Hoc Manuscript Reviewer

2012 *Disability and Rehabilitation: Assistive Technology,* “Impacts of Wheelchair Acquisition on Children from a Person-Occupation-Environment Interactional Perspective”, Ad-Hoc Manuscript Reviewer.

2011 *Assistive Technology Journal,* “Wheelchair components and pulmonary function in children with cerebral palsy”, Ad-Hoc Manuscript Reviewer.

*Disability and Rehabilitation: Assistive Technology*, “An overview of systematic reviews of adaptive seating interventions for children with cerebral palsy: Where do we go from here?”Ad-Hoc Manuscript Reviewer.

2010 *Disability and Rehabilitation: Assistive Technology,* “The Use of Pressure Mapping for Seating Posture Characterization in Children with Cerebral Palsy”,Ad-Hoc Manuscript Reviewer.

*Assistive Technology Journal*, “Wheelchair Positioning and Airway Resistance in Children with Cerebral Palsy”,Ad Hoc Manuscript Reviewer.

2009National Rehabilitation Center for Persons with Disabilities, WHO Collaborating Centre, Japan. *Fundamentals of Wheelchair Seating*, Invited Reviewer.

2009HSR&D/RR&D Center of Excellence, Maximizing Rehabilitation Outcomes, James A Haley VAMC, “Posture Scale/Seated Position” draft measurement instrument being developed by Lee Barks, PhD, ARNP, Postdoctoral Fellow, Expert Panel Consultant.

INVITED EXTRAMURAL LECTURES, PRESENTATION & VISITING PROFESSORSHIPS

**International**

**Waugh, K** and Brown, L (2019, 2020) *Body, Seating and Frame Measurements from Assessment to Delivery*. Presented this content two times in 2019 and one time in 2020. Full day pre-conference course presented at the 35th International Seating Symposium, Pittsburgh, PA, USA, 03/18/2019 and repeated (with modifications) at the 36th International Seating Symposium, Vancouver, BC 3/6/2020. Half-day workshop presented at the 2nd Oceania Seating Symposium, Melbourne, Australia, 11/12/2019.

**Waugh, K** and Saftler-Savage, F. (2019) *Advanced Topics in Wheelchair Seating and Mobility,* full day workshop hosted by Medifab, Auckland, New Zealand, 11/20/2019.

**Waugh, K** (2019) *A Biomechanical Approach to Managing Abnormal Postures of the Head and Neck,* 2nd Oceania Seating Symposium, Melbourne, Australia, 11/14/2019.

**Waugh, K** (2019) *Body Segment Angles: The Key to Understanding Postural Deviations in the Sagittal Plane,* 2nd Oceania Seating Symposium, Melbourne, Australia, 11/13/2019.

Sonnenblum, S., Sprigle, S., Shea, M., **Waugh, K** and Dyson-Hudson, T. (2019) *How does it shape up? Buttock shapes across wheelchair cushions*. Poster presentation, 35th International Seating Symposium, Pittsburgh, PA, USA

**Waugh, K** (2018)*Wheelchair Seating Principles & Assessment,* Invited Speaker, Full day course at the Columbia Seating Symposium, Medellin, Columbia. 8/2/18

**Waugh, K** (2018)*Positioning the Complex User,* Invited Speaker at the Columbia Seating Symposium, Medellin, Columbia 8/3/18

**Waugh, K** (2018) *A Clinical Process for Custom Contoured Seating.* Presentation at the 34th International Seating Symposium, Vancouver, BC, Canada

**Waugh, K** (2017) *Custom Contoured Seating-Ensuring Successful Outcomes,* Invited SpeakerPresentation at the 1st Oceania Seating Symposium, Rotorua, New Zealand

**Waugh, K** (2017) *Standardized Seating and Posture Measures: A Practicum,* Invited SpeakerCourseat the 1st Oceania Seating Symposium, Rotorua, New Zealand

**Waugh, K** (2017)*, A Problem Solving Model for Seating Assessment*, Invited SpeakerPresentation at the 1st Oceania Seating Symposium, Rotorua, New Zealand

**Waugh, K** (2016) *ISO Standardized Measures for Seating Supports and Seated Posture*, Invited Speaker presentation at the 5th European Seating Symposium, Dublin, Ireland

**Waugh, K** (2016) *A Problem Solving Model for Seating Assessment*, Presentation at the 5th European Seating Symposium, Dublin, Ireland

**Waugh, K** (2016) *Custom Contoured Seating-Ensuring Successful Outcomes*, Presentation at the 5th European Seating Symposium, Dublin, Ireland

**Waugh, K** (2016) *Advanced Topics in Wheelchair Seating and Positioning: Standardized Seating and Posture Measurement, and Wheelchair Seating Assessment*, 2 day course hosted by Enable Ireland, Cork, Ireland

**Waugh, K** (2016) *ISO Standardized Measures for Seating Supports and Seated Posture: A Practicum,* Full day course hosted by Invacare Canada, London, Ontario, Canada

**Waugh, K** (2016) *Wheelchair Seating Assessment: Determining Critical Features of the Seating Support System*, Full day training provided to the Invacare Canada sales team, Mississauga, Ontario, Canada

**Waugh, K**. (2016) *ISO Performance Standards for Postural Support Devices: What Should I Know?* Presentation at the 32nd International Seating Symposium, Vancouver, BC, Canada

Bach, J., **Waugh, K.** (2016).*Using Biomechanical Principles in the Management of Complex Postural Deviations in Sitting,* Full day pre-conference course*,* 32nd International Seating Symposium, Vancouver, BC, Canada

**Waugh, K**. (2015) *Standardized Seating and Posture Measurement: A Practicum.* Full day course, invited by the Superior Seating & Mobility Association to be primary speaker for their 2015 Annual Conference, Thunder Bay, Ontario, Canada

**Waugh, K.,** Crane, B. (2015) *Measuring Wheelchair Seated Posture and Seating Supports: A Practicum,* Full day pre-conference instructional course,31st International Seating Symposium, Nashville, TN.

Bach, J., **Waugh, K.** (2015).*Biomechanics for Seating,* Half day pre-conference course*,* 31st International Seating Symposium, Nashville, TN

**Waugh, K**. (2015) *New ISO Standards for Postural Support Devices: What Should I Know?* 31st International Seating Symposium, Nashville, TN

**Waugh, K.** (2015)*New ISO/RESNA Standards for Postural Support Devices: What should I know and why should I care?* 1 hour webinar hosted by Bodypoint Designs to international customers, January 20, 2015.

**Waugh, K**. (2014) *Introduction to Standardized Seating Measurement*, 3 hour webinar, delivered to staff at Ottawa Children’s Treatment Centre – Seating and Mobility Service, Ottawa, Canada, October 7, 2014.

Handa, T.,Crane, B. and **Waugh, K.,** (2014) *Wheelchair Seated Posture Measurement in a Clinical Setting*,30th International Seating Symposium, Vancouver, B.C.

Bach, J., **Waugh, K.** (2014).*Biomechanics for Seating,* 30th International Seating Symposium, Vancouver, B.C.

Bach, J., **Waugh, K.** (2014).*A system for measuring pelvic position using electromagnetic tracking,* Research paper presentation,30th International Seating Symposium, Vancouver, B.C.

**Waugh, K.,** Bach, J. (2014*). Results of a pilot feasibility study to evaluate the accuracy and reliability of seated posture measurement using existing and emerging tools.* Research paper presentation, 30th International Seating Symposium, Vancouver, B.C.

**Waugh, K.,** Crane, B. (2014) *Measuring Wheelchair Seated Posture and Seating Supports: A Practicum,* Full day pre-conference instructional course,30th International Seating Symposium, Vancouver, B.C.

**Waugh, K.** (2014).*A Clinical Application Guide to ISO 16840-1*,Seated Posture Measurement Conference, Japan, lecture presented via Skype

**Waugh, K.,** Crane, B. (2013) *Measuring Wheelchair Seated Posture and Seating Supports: A Practicum,* Full day pre-conference instructional course, 29th International Seating Symposium, Nashville, Tennessee

Bach, J., **Waugh, K.** (2013).*Biomechanics for Seating,* 29th International Seating Symposium, Nashville, Tennessee

**Waugh, K.** (2013). *Custom Contoured Seating: Ensuring Successful Outcomes*, 29th International Seating Symposium, Nashville, Tennessee

**Waugh, K.** (2013).*Standardized Seating Measurement: Introduction to a Clinical Guide*,Seated Posture Measurement conference, Japan, lecture presented via Skype

**Waugh, K.,** Crane, B. (2012) *Measuring Wheelchair Seated Posture and Seating Supports: Standardization of Terms and Methodologies,* 28th International Seating Symposium, Vancouver, BC.

**Waugh, K**. (2011) *A Problem-Solving Model for Wheelchair Seating Assessment*, 27th International Seating Symposium, Nashville, Tennessee.

**Waugh, K**. (2010) *The* *Mat Exam,* Full day Pre-Symposium Workshop, 26th International Seating Symposium, Vancouver, BC, Canada.

**Waugh, K.** (2007) *Nighttime Positioning*, 23rd International Seating Symposium. Orlando, Florida.

**Waugh, K.** (2005) *Wheelchair Seating Principles and Assessment*, Full day preconference instructional course, 2005 International Conference on Posture and Wheeled Mobility. Exeter, England.

**Waugh, K.** (2005) *Sleep Positioning*, Parallel session, 2005 International Conference on Posture and Wheeled Mobility. Exeter, England. April 2005

**Waugh, K.** (2005) *Therapeutic Positioning During Sleep*, 21st International Seating Symposium. Orlando, Florida.

Crane, B., **Waugh, K***.* (2005) *International Standard for Postural Measures of a Wheelchair Seated Person*, 21st International Seating Symposium. Orlando, Florida.

**Waugh, K.,** Minkel, J. (2003) *Mat Evaluation Techniques and the Use of Seating Simulation,* Exhibit HallDemonstration, 19th International Seating Symposium. Orlando, Florida.

Crane, B., Minkel, J., **Waugh, K.** (2003) *Clinical Application of the Wheelchair Seating Standards,* 19th International Seating Symposium, Orlando, Florida.

Hobson, D., Crane, B., **Waugh, K.** (2001) *Measurement and Recording of Seated Posture: A Work in Progress*, 17th International Seating Symposium, Orlando, Florida.

**Waugh, K*.*** (1995)*Assessment: The Key to Successful Therapeutic Seating*, Full Day Seminar, The Best of Atlanta 1995, Sponsored by Doncaster Home Health Care Centre, Toronto, Canada.

**National**

**Waugh, K** (2019) *A Clinical Process for Custom Contoured Seating*, Miller’s Adaptive Technologies, Akron, Ohio, 10/24/2019. Developed and presented this full day instructional course for Miller's 27th Annual Educational Seminar.

**Waugh, K** (2018) *Body Segment Angles: The Key to Understanding Postural Deviations in Sitting*, 1 hour live webinar sponsored by NRRTS (National Registry of Rehabilitation Technology Suppliers)

**Waugh, K** (2017) *Standardized Seating and Posture Measurement: A Practicum*, full day course hosted by Ride Designs, Littleton, Colorado

**Waugh, K** (2017) *Specifying the Three Primary Seating Angles*, 2 hour live webinar sponsored by Numotion, Clinical Education Webinar Series

**Waugh, K** (2017) *A Biomechanical Approach to Managing Abnormal Postures of the Head and Neck*, 1 hour live webinar sponsored by NRRTS (National Registry of Rehabilitation Technology Suppliers)

**Waugh, K** (2016) *Standardized Seating and Posture Measurement: A Practicum*, full day course hosted by Ride Designs, Littleton, Colorado (delivered this course two times in 2016)

**Waugh, K** (2016)*Wheelchair Seating Advanced Topics: Product Features and Intervention Strategies for Complex Seating Needs*, full day course sponsored by Numotion and hosted by the Rusk Institute, New York City, New York

**Waugh, K** (2016)*Specifying the Three Primary Seating Angles*, 1 hour webinar sponsored by Numotion, Clinical Education Webinar Series

**Waugh, K** (2016) *Wheelchair Seating for Postural Control and Function*, 3 day course hosted by the University of Nebraska Medical Center, Omaha, Nebraska

**Waugh, K** (2015) *The New Standardized Seating Measurements: Part I and II*, invited speaker, Cerebral Palsy Association of New York State Annual Conference, Saratoga, New York; October 27, 2015

**Waugh, K** (2015)*New RESNA Standards for Postural Support Devices: What Should I Know*, invited 1 hour webinar, National Registry of Rehabilitation Technology Suppliers (NRRTS) 2015 Webinar Series; August 20, 2015.

**Waugh, K** (2015)*Improving Outcomes with Custom Contoured Seating: Theory and Practice*. Full day pre-conference instructional course,RESNA Annual Conference, Denver, Colorado

**Waugh, K.** (2014)*Standardized Seating Measurement: A Practicum***,** Providence St. Vincent Medical Center, Portland, Oregon; October 11, 2014.

**Waugh, K**. (2014) *Wheelchair Seating For Postural Control and Function: Principles, Assessment & Intervention,* 2 day workshop*;* St Luke's Elks Children's Rehab, Boise, Idaho; August 15 & 16 2014

**Waugh, K.** (2013) *Measuring Wheelchair Seated Posture and Seating Supports: A Practicum,* Full day pre-conference instructional course,RESNA Annual Conference, Seattle, Washington

**Waugh, K.** (2013) *Wheelchair Seating Assessment with Practicum, 2-day course*, The Center for Discovery, Harris, New York.

**Waugh, K.** (2013).*Standardized Seating Terms and Measures*, 2 hour webinar, National Registry of Rehabilitation Technology Suppliers (NRRTS) 2013 Webinar Series

**Waugh, K.** (2013, 4x).*Standardized Seating Measurement: Introduction to a Clinical Guide*,ATG Rehab/USM National Sales Conference, Las Vegas, Nevada.

**Waugh, K.,** Crane, B. (2012) *Standardized Seating Measurement: Train the Trainer Workshop*, full day course, Assistive Technology Partners, University of Colorado, Denver, Colorado.

**Waugh, K**. (2012). *Special Topics in Wheelchair Seating Assessment and Intervention*, 20th Annual Educational Seminar, Miller’s Healthcare Products for Independence, Akron, Ohio.

**Waugh, K.** (2012) *Wheelchair Seating Assessment: Determining Critical Features of the Body Support System*, full day course, Med Center One Pediatric Therapy Department, Bismark, ND, 9/15/12.

### Waugh, K. (2012, 6x) *Clinical Considerations for Custom Contoured Seating,* full day course, Rehab Roadshow, Otto Bock HealthCare., 3/20/12-Philadelphia, PA; 3/22/12-Albany, NY; 3/23/12-Newburgh, NY; 5/12/12-Los Angelos, CA; 5/13/12-Los Angelos, CA; 11/8/12-Detroit, MI.

### Waugh, K. (2011) *Wheelchair Seating Assessment: Determining Critical Features of the Body Support System,* full day course, 19th Annual Educational Seminar, Miller’s Healthcare Products for Independence, Akron, Ohio.

**Waugh, K.** (2011, 2x) *Custom Contoured Seating*, 2 hour webinar, ATP Journeyman Program, MED Group.

**Waugh, K.** (2011) *Wheelchair Seating for Postural Control and Function*, 3 day course, Lufkin State Supported Living Center, Lufkin, Texas; September 26, 27 & 28, 2011.

**Waugh, K.** (2011, 3x) *Clinical Considerations for Custom Contoured Seating*, full day course, Rehab Roadshow, Otto Bock HealthCare. 9/14/11-Tifton, GA; 9/16/11-Panama City, FL; 11/19/11-Largo, FL.

### Waugh, K. (2010) *Wheelchair Seating Assessment: Determining Critical Features of the Body Support System,* full day course, Erie Seating Symposium, Erie, PA.

### Waugh, K. (2010, 8x) *Clinical Considerations for Custom Contoured Seating*, full day course, Rehab Roadshow, Otto Bock HealthCare, Rockville, MD 4/24/10; Miami, FL 6/5/10; Waco, TX 8/19/10; Miami, FL 9/10/10; Chicago, IL 9/13/10; St. Louis MO 9/14/10; Minneapolis, MN 9/16/10; Alexandria, VA 11/4/10.

### Waugh, K. (2009, 3x) *Clinical Considerations for Custom Contoured Seating,* full day course, Rehab Roadshow, Otto Bock HealthCare, Lancaster, PA 8/20/09; Rochester, NY 11/4/09; Milwaukee, WI 11/6/09.

**Waugh, K.** (2009) *Nighttime Positioning Workshop*, full day course, Syracuse Developmental Center, Syracuse, New York.

**Waugh, K.** (2009) *The importance of body positioning and use of a specialized positioning mattress on sleep behavior of individuals with severe physical disabilities,* Poster Presentation,Fifth Annual Conference on Pediatric Sleep Medicine, Westminster, Colorado.

**Waugh, K.** (2009) *Mat Exam Practicum,* half day preconference session, RESNA Annual Conference, New Orleans, LA.

**Waugh, K.** (2009) *Wheelchair Seating Principles and Assessment,* full day preconference session, RESNA Annual Conference, New Orleans, LA.

**Waugh, K.**  (2009) *Seating Angles: Improving Accuracy and Decreasing Costs,* MED Group Rehab Summit, Denver, Colorado.

**Waugh, K.** (2008) *Wheelchair Seating Principles and Assessment,* full day preconference session, RESNA Annual Conference, Washington, DC.

**Waugh, K**. (2007) *Wheelchair Seating Principles and Assessment,* full day preconference session, RESNA Annual Conference, Phoenix, Arizona.

### Waugh, K. (2006) *Wheelchair Seating For Postural Control And Function,* 3 day workshop, Syracuse Developmental Center, Syracuse, New York.

### Waugh, K. (2005) *Wheelchair Seating For Postural Control And Function,* 3 day workshop Sonoma Valley State Training Center, Sonoma, California.

### Waugh, K. (2005) *Seating and Positioning 101: Principles and Product Parameters*, 2 day course, Otto Bock Healthcare, Minneapolis, MN.

### Waugh, K. (2004, 5x) *Wheelchair Seating For Postural Control and Function,* 3 day course,sponsored by Milestones Therapy Center, at various locations nationwide.

**Waugh, K.** (2004, 4x)*Addressing the Needs Of Individuals With Moderate To Severe Postural Problems, 2 day course,*  Seating and Positioning Advanced Education Series, Otto Bock Health Care, at various locations nationwide.

**Waugh, K.**  (2003, 8x) *Wheelchair Seating for Postural Control and Function,* 3-day course, sponsored by Milestones Therapy Center, at various locations nationwide

### Waugh, K. (2003, 6x) *Addressing the Needs of Individuals with Moderate to Severe Postural Problems,* 2-day course, Seating and Positioning Advanced Education Series, Otto Bock Health Care, at various locations nationwide

**Waugh, K.** (2002) *Advanced Clinical Practicum: Indirect Molding,* Advanced Practicum Session,RESNA Annual Conference. Minneapolis, MN.

### Waugh, K. (2002, 8x) *Wheelchair Seating for Postural Control and Function,* 3-day workshop, sponsored by Milestones Therapy Center, at various locations nationwide

### Waugh, K. (2007, 7x) *Wheelchair Seating for Individuals with CNS Dysfunction: Principles, Assessment and Intervention, 3-*day workshop, by contract with various institutions nationwide

**Waugh, K.** (2000, 8x) *Wheelchair Seating for Individuals with CNS Dysfunction: Principles, Assessment and Intervention, 3-*day workshop by contract with various institutions nationwide

**Waugh, K.** (2000) *Therapeutic Seating Seminar: Overview of Principles and Assessment*. Half day seminar sponsored by Wayne Pharmacy Healthcare. Newark, New York.

**Waugh, K.** (2000) *Advanced Seating And Positioning: A Biomechanical Approach.* Sioux Falls, South Dakota.

**Waugh, K.** (2000) *Therapeutic Seating: Principles and Assessment,* full day pre-conference instructional course, RESNAAnnual Conference, Orlando, Florida.

**Waugh, K.** (1999) *Therapeutic Seating: Principles and Assessment,* pre-conference full day instructional course, RESNAAnnual Conference, Long Beach, California.

**Waugh, K.** (1998) *Therapeutic Seating: Principles and Assessment,* preconference full day instructional course, RESNAAnnual Conference. Minneapolis, Minnesota.

Waugh, K. (1998) *Addressing Difficult Postural Seating Problems Using A Biomechanical Approach,* pre-conferenceinstructional course, RESNA Annual Conference, Minneapolis, MN.

### Waugh, K. (1997) *Therapeutic Seating Assessment Workshop,* 2-day workshop, Children’s Specialized Hospital, Mountainside, NJ.

**Waugh, K.** (1997) *Therapeutic Seating: Principles, Assessment and Intervention For Children And Adults.*Two day workshop presented at Children’s Care Hospital and School, Sioux Falls, South Dakota

**Waugh, K.** (1997) *Therapeutic Seating: Principles and Assessment,* pre-conference full day instructional course, RESNAAnnual Conference, Pittsburgh, Pennsylvania.

**Waugh, K.** (1996) *Therapeutic Seating: Principles and Assessment,* pre-conference full day instructional course, RESNAAnnual Conference, Salt Lake City, Utah.

### Waugh, K. (1996, 3x) *Therapeutic Seating Assessment Workshop,* 2 day workshop, Children’s Specialized Hospital, Mountainside, NJ, May 1996; Greene Valley Developmental Center, Tennessee July 1996; Clover Bottom Developmental Center, Tennessee: September 1996

### Waugh, K. (1995, 2x) *Therapeutic Seating Assessment Workshop,* 2-day workshop, Children’s Specialized Hospital, Mountainside, NJ

**Waugh, K.,** Saftler, F., Bergen, A. (1994) *Seating For Function I: Assessment*, pre-conference instructional course, RESNA Annual Conference, Nashville, Tennessee.

**Waugh, K**., Saftler, F., Bergen, A *(1994) Seating For Function II: Assessment Practicum*, pre-conference instructional course, RESNA Annual Conference, Nashville, Tennessee.

**Waugh, K.** (1993) *Assessment: The Key to Successsful Therapeutic Seating,* half-day seminar, Assistive Technology: What's New, What's Available and How to Get It, Somerset, New Jersey.

**Waugh, K**. *(1993) Adaptive Seating and Adaptive Seating Workshop, i*Invited lecture and hands-on session, Orthotics: A Comprehensive Course,Kessler Institute for Rehabilitation, West Orange, New Jersey.

**Waugh, K.,** Bergen, A. (1993) *Seating For Function I: Assessment,* pre-conference instructional course, RESNA Annual Conference, Las Vegas, Nevada.

**Waugh, K.,** Bergen, A. *(1993) Seating For Function II: Intervention,* pre-conference instructional course, RESNA Annual Conference. Las Vegas, Nevada.

**Waugh, K**., Bergen, A. (1993) *Seating For Function III: Assessment Practicum*, instructionalcourse,RESNA Annual Conference, Las Vegas, Nevada.

Waugh, K., Bullard, M. (1992) *Towards Sitting the Unsittable: Alternative Therapeutic Positioning Equipment for the Severely Posturally Challenged*, RESNA Annual Conference, Toronto, Canada.

**Waugh, K**., Saftler, F., Bergen, A. (1992) *Seating For Function: Assessment and Intervention I,* full day pre-conference instructional course, RESNA Annual Conference, Toronto, Canada.

**Waugh, K.,** Saftler, F., Bergen, A. (1992) *Seating For Function: Assessment and Intervention II,* half-day instructional course, RESNA Annual Conference, Toronto, Canada

### Waugh, K. (1992) *Therapeutic Seating Assessment Workshop,* 2-day course, Wyoming State Training School, Lander, Wyoming

### Waugh, K. (1991) *Therapeutic Seating Assessment Workshop,* 2-day course, Albertson, New York

**Waugh, K.,** Saftler, F. (1991) *Assessment - The Key to Successful Therapeutic Seating,* seminar, RESNA Annual Conference. Kansas City, Missouri

### Waugh, K. (1990) *Therapeutic Seating Assessment Workshop,* 2-day workshop presented in Albertson, New York

### Waugh, K., Saftler, F. (1986, 4x) *Therapeutic Seating Equipment for the Developmentally Disabled - A Clinical Workshop,* 1 ½ day course, presented 4 times during 1986 at various locations in Florida

**Waugh, K.,** Saftler, F.(1985, 4x)*Therapeutic Seating Equipment for the Developmentally Disabled - A Clinical Workshop,* 1 ½ day course, presented 4 times during 1985 at various locations in Florida

**Local – Colorado**

**Waugh, K** (2020) Wheelchair Seating Features for Postural Control and Function, Conference for Assistive Technology and Education, Denver, CO, 06/08/2020. Adapted a full length, in-person course to a 4 hour live webinar for this conference (due to pandemic)

**Waugh, K** (2019) Wheelchair Seating Features for Postural Control and Function, Aurora Public School District, Aurora, Colorado, 09/26/2019. Developed and presented this full day workshop for PTs and OTs in Colorado school districts

**Waugh, K** (2019) Assistive Technology for Movement Impaired Patients, University of Colorado School of Medicine/Dept of Neurology, Aurora, Colorado. Invited to present this lecture for the Department of Neurology as part of their Movement Disorders Center Conference Series. 09/11/2019

**Waugh, K** (2019) *PT/OT Role in the Wheelchair Service Delivery Process,* presentation at the SWAAC Annual Conference, Westminster, Colorado, 06/11/2019

**Waugh, K** (2016)*Standardized Seating & Posture Measurement: A Practicum,* full day coursehosted by Ride Designs/Aspen Seating, Littleton, Colorado. Presented this course 2 times in 2016, on 8/10/16 and 10/12/16

**Waugh, K** (2015) *Standardized Seating Measurement: A Practicum*, 1 day course hosted by Assistive Technology Partners, Denver, Colorado; November 13, 2015

**Waugh, K** (2015)*Wheelchair Seating for Postural Control and Function*, 2 day course hosted by Craig Hospital for their PT/OT staff, Craig Hospital, Denver, Colorado; November 7 & 8, 2015

**Waugh, K** (2015)*Wheelchair Seating for Postural Control and Function*, 3 day course hosted by Assistive Technology Partners, Denver, Colorado; August 13 -15 2015

**Waugh, K.** (2014) *Wheelchair Seating for Postural Control and Function*, 3 day course hosted by Assistive Technology Partners, Denver, Colorado; April 24, 25 &26, 2014

### Waugh, K. (2015, 2014, 2011, 2009, 2008) *Wheelchair Seating for Postural Control and Function*, 3-day course, hosted by Assistive Technology Partners, Denver, Colorado

**Waugh, K.** (2012) *Wheelchair Seating Assessment: Determining Critical Features of the Body Support System*, full day course, Assistive Technology Partners, WesTAC, Grand Junction, Colorado.

### Waugh, K. (2012) *Clinical Aspects of Custom Contoured Seating*, full day course, Assistive Technology Partners, University of Colorado, Denver, Colorado

**Waugh, K.** (2010) *Critical Seating Features*, Kids Mobility Expo, Denver, Colorado

**Waugh, K.** (2008)*Principles of Seating and Positioning for Switch Access,* Colorado Department of Education, Denver, Colorado

**Waugh, K.** (2008, 2007, 2006) *Positioning for Success,* Collaborative Assistive Technology Conference of the Rockies, Denver, Colorado

**Waugh, K,** Buning, MEB**.** (2007) *Medicare Coverage Criteria for Power Mobility Devices,* General Internal Medicine physicians in-service, University of Colorado Health Sciences Center, Denver, Colorado

### Waugh, K., Salm, R. (2006) *Wheelchair Seating and Mobility Seminar, 2-* day seminar, Peak Wheelchairs, Aurora, Colorado

**Waugh, K**. (2005) *Seating and Positioning 101: Principles and Assessment,* full day pre-conference session, The Collaborative Assistive Technology Conference of the Rockies, Westminster, Colorado

Lange, M., **Waugh, K**. (2004) *AT and Motor Access*, full day preconference session, Assistive Technology Conference of the Rockies, Westminster, Colorado

**Waugh, K.** (2003) *Wheelchair Seating: Principles and Assessment*, United Seating and Mobility, Colorado Springs, Colorado

ACADEMIC TEACHING RECORD

**Waugh, K.** (2017-2020) *Advanced Wheelchair Assessment Lab*, in DPTR6503: *Neuromuscular Conditions III*. University of Colorado Physical Therapy Program, primary invited lab instructor for 2nd year students in the DPT Degree Program, December 2017, 2018, 2019; November 2020.

**Waugh, K.** (2017-2019) *Physical Therapist Role in Wheelchair Services*, in DPTR6503: *Neuromuscular Conditions III*. University of Colorado Physical Therapy Program, invited lecture for 2nd year students in the DPT Degree Program, December 2017, 2018, 2019

**Waugh, K.** (2017-2019) *Introduction to Wheelchair Technologies and Assessment*, in DPTR5501: *Neuromuscular Conditions I*. University of Colorado Physical Therapy Program, invited lecture and lab instructor for 1st year students in the DPT Degree Program, March 2017, 2018, 2019

**Waugh, K.** (2016) *Advanced Wheelchair Assessment Lab*, in DPTR6503: *Neuromuscular Conditions III*. University of Colorado Physical Therapy Program, invited lab instructor for 2nd year students in the DPT Degree Program, 11/17/16

**Waugh, K.** (2016) *Physical Therapist Role in Wheelchair Services*, in DPTR6503: *Neuromuscular Conditions III*. University of Colorado Physical Therapy Program, invited lecture for 2nd year students in the DPT Degree Program, 11/17/16

**Waugh, K.** (2016) *Wheelchair Mobility*, in *BIOE 5420: Rehabilitation and Assistive Technology*, University of Colorado Department of Bioengineering, School of Engineering and Applied Sciences, invited lecture and lab, 11/14/16 and 11/16/16.

**Waugh, K.** (2016) *Wheelchair Seating*, in *BIOE 5420: Rehabilitation and Assistive Technology*, University of Colorado Department of Bioengineering, School of Engineering and Applied Sciences, invited lecture and lab, 10/24/16 and 10/26/16.

**Waugh, K.** (2016) *Introduction to Wheelchair Technologies and Assessment*, in DPTR5501: *Neuromuscular Conditions I*. University of Colorado Physical Therapy Program, invited lecture and lab instructor for 1st year students in the DPT Degree Program, 03/28/16

**Waugh, K.** (2015) *Advanced Wheelchair Lab*, in *Neuromuscular Conditions III*. University of Colorado Physical Therapy Program, invited lab instructor for 2nd year students in the DPT Degree Program, 11/24/15

**Waugh, K.** (2015) *Physical Therapist Role in Wheelchair Services*, in *Neuromuscular Conditions III*. University of Colorado Physical Therapy Program, invited lecture for 2nd year students in the DPT Degree Program, 11/23/15

**Waugh, K.** (2015) *Wheelchair Seating*, in *BIOE 5420: Rehabilitation and Assistive Technology*, University of Colorado Department of Bioengineering, School of Engineering and Applied Sciences, invited lecture and lab, 10/14/15.

**Waugh, K.** (2015) *Wheelchair Mobility*, in *BIOE 5420: Rehabilitation and Assistive Technology*, University of Colorado Department of Bioengineering, School of Engineering and Applied Sciences, invited lecture and lab, 10/21/15

**Waugh, K.** (2015) *Topics in Wheelchair Seating: Overview of Technologies and Assessment*, in *Neuromuscular Conditions I*. University of Colorado Physical Therapy Program, invited lecture/lab for 1st year students in the DPT Degree Program, 3/30/15

**Waugh, K.** (2015) *Topics in Wheelchair Seating: Seated Posture and the Mat Exam*, in *Neuromuscular Conditions II*. University of Colorado Physical Therapy Program, invited lecture/lab for 2nd year students in the DPT Degree Program, 3/2/15

**Waugh, K.** (2014)*Standardized Wheelchair Seating and Posture Measurement.*University of Colorado, Department of Physical Medicine and Rehabilitation, Grand Rounds invited lecture

**Waugh, K.** (2013) *Seating, Mobility and Biomechanics*, in *Bioengineering: Overview of Assistive Technology.* University of Colorado Department of Bioengineering, School of Engineering, invited lecture

**Waugh, K.** (2012) *Seating, Mobility and Biomechanics*, in *Bioengineering: Overview of Assistive Technology.* University of Colorado Department of Bioengineering, School of Engineering, invited lecture

**Waugh, K.** (2011) *Seating, Mobility and Biomechanics*, in *Bioengineering: Overview of Assistive Technology.* University of Colorado Department of Bioengineering, School of Engineering, invited lecture

**Waugh, K.** (2009) *Wheelchair Seating Principles*, University of Colorado Denver Physical Therapy Program, invited lecture

**Waugh, K.** (2009) CLSC 6281, *Biomechanics*, in *Assistive Technology: Engineering and Biotechnology: Principles & Emerging Technologies*, University of Colorado Denver, invited Lecture

**Waugh, K.** (2009) CLSC 6251, *Motor Control and Switch Access, in Assistive Technology: Advanced Practices in AT Assessment*, University of Colorado Denver, invited lecture

**Waugh, K.** (2009) CLSC 6261, *Overview of Wheelchair Seating and Mobility*, in *Assistive Technology: Implementation for Low Incidence Disabilities*, University of Colorado Denver, invited lecture

**Waugh, K.** (2008) *Wheelchair Seating Principles*, University of Colorado Denver Physical Therapy Program, invited lecture

**Waugh, K**. (2008) CLSC 6251, *Wheelchair Seating Assessment*, in *Assistive Technology: Advanced Practices in AT Assessment*, University of Colorado Denver, invited lecture

**Waugh, K.** (2008) CLSC 6261, *Wheelchair Seating Implementation in* *Assistive Technology: Implementation for Low Incidence Disabilities*, University of Colorado Denver, invited lecture,

**Waugh, K**. (2007) CLSC 6251, *Wheelchair Seating Assessment*, in *Assistive Technology: Advanced Practices in AT Assessment*, University of Colorado Denver, invited lecture

**Waugh, K.** (2007) CLSC 6261, *Wheelchair Seating Implementation,* in *Assistive Technology: Implementation for Low Incidence Disabilities,* University of Colorado Denver, invited lecture

**Waugh, K.** (2006) *Wheelchair Seating Principles,* University of Colorado Denver and Health Sciences Center, Physical Therapy Program, invited lecture

**Waugh, K**. (2006) CLSC 6251, *Wheelchair Seating Assessment*, in *Assistive Technology: Advanced Practices in AT Assessment,* University of Colorado Denver

**Waugh, K.** (2006) CLSC 6261, *Wheelchair Seating Implementation,* in *Assistive Technology: Implementation for Low Incidence Disabilities*, University of Colorado Denver, invited lecture

**Waugh, K.**  (2005) *Wheelchair Seating Principles*, University of Colorado Denver and Health Sciences Center, Physical Therapy Program, invited lecture

**Waugh, K**. (2005) CLSC 6251, *Wheelchair Seating Assessment*, in *Assistive Technology: Advanced Practices in AT Assessment,* University of Colorado Denver, invited lecture

**Waugh, K.** (2005) CLSC 6261, *Wheelchair Seating Implementation,* in *Assistive Technology: Implementation for Low Incidence Disabilities*, University of Colorado Denver, invited lecture

Clinical Instruction/ Mentoring/Student Advising

2019 **Master’s Thesis Committee Member** (Spring 2019). Sat on committee for Kurt Pierson’s Master Thesis Defense, *Development Of A 3-Dimensional Spatial-Orientation Palpation Device To Measure Relative Angles, Absolute Angles And Linear Body Dimensions For Wheelchair Seating And Positioning*, Department of Bioengineering, College of Engineering, Design and Computing, University of Colorado Denver | Anschutz Medical Campus.

2017 **Student Independent Study Content Advisor** (Spring 2017) Provided clinical content expertise and guidance to Jason Nadeau, Master Degree candidate in the Modern Human Anatomy Program at University of Colorado Anschutz Medical Campus, regarding the project: *Nighttime Positioning for Children with Motor Impairments: The Final Piece of 24 Hour Postural Care*

2017 **Student Research Content Advisor** (2016-2017) Provided clinical content expertise to Kurt Pierson, Master Degree candidate in the Department of Bioengineering, College of Engineering and Applied Sciences, University of Colorado Denver | Anschutz Medical Campus, regarding the project: *Development Of A 3-Dimensional Spatial-Orientation Palpation Device To Measure Relative Angles, Absolute Angles And Linear Body Dimensions For Wheelchair Seating And Positioning*

2014 **Student Research Content Advisor**. Provided content expertise and related instruction to three Denver University (DU) undergraduate senior engineering students (Mohammed Agha, Lydia Bower, and Spencer Currie) in collaboration with Dr. Bradley Davison of DU, to support their senior design project in which they developed a Wheelchair Seated Posture Measurement Tool. Provided list of design requirements and background literature, and met with students 3-4 times throughout the project. October 2013 – May 2014

2011 **Supervisor.** (Aug – Dec 2011) Provided supervision and mentorship to Nicole Slanikowski, Metro State undergraduate student during her internship at ATP. Provided direction and oversight during preliminary retrospective data collection for review of nighttime positioning clinical service.

2010 **Supervisor.** (Aug – Dec 2010) Provided supervision and mentorship to Kristen Andresen, Metro State undergraduate student during her internship at ATP. Provided direction and oversight during preliminary retrospective data collection for review of nighttime positioning clinical service.

1. **Clinical Instructor**. (Jan – May 2010) Provided clinical instruction, supervision and mentorship to Lindsey Kramer, DPT Student during her final affiliation, University of Colorado Denver Physical Therapy Program
2. **Clinical Instructor**. (Aug - Dec 2007) Provided clinical instruction, supervision and mentorship to Nicole Parker, DPT Student during her final affiliation, University of Colorado Denver Physical Therapy Program

GRANT SUPPORT

**Waugh, K.,** Bodine, C., Melonis, M., and Smith, C. (2019) Upper Payment Limit (UPL) CIDE Assistive Technology Clinic Supplement. CU Medicine/Colorado Department of Health Care Policy & Financing. ($111,694 FY2019-Qtr 4; $368,004 FY2020; $342,264 FY2021)

Sonenblum, S, Principal Investigator, Bodine, C. Co-Principal Investigator, **Waugh, K. Co-Investigator**, (2017-2019)  National Institute on Disability, Independent Living and Rehabilitation Research, US Department of Health and Human Services, Field Initiated Research Project, *“Personalized Medicine for Pressure Ulcer Prevention: Clinical Measures of Buttocks Deformation” ($70,020)*

**Waugh, K.** (2012-2013) *Promoting the adoption of uniform wheelchair seating terminology (#690),*  Paralyzed Veterans of America (PVA) Education Foundation, Project Director ($49,967)

**Waugh, K**. (2011-2013) *Development of a clinical guide to wheelchair seating terms and measures (#668),*  Paralyzed Veterans of America (PVA) Education Foundation, Project Director ($50,000)

BIBLIOGRAPHY

Peer Reviewed Journal Articles

1. **Waugh, K.,** Minkel, J. (1983) Measurement of Selected Hip, Knee and Ankle Joint Motions in Newborns. *Physical Therapy*, Vol.63, No. 10.

Books and Monographs

1. **Waugh, K.,** and Crane, B. (2013). A Clinical Application Guide to Standardized Wheelchair Seating Measures of the Body and Seating Support Surfaces *(Rev. Ed).* Denver, CO: University of Colorado Denver (363 pgs). Available from: [www.assistivetechnologypartners.org](http://www.assistivetechnologypartners.org)
2. **Waugh, K.** (2013). Glossary of Wheelchair Terms and Definitions, Version 1.0, December 2013. Denver, CO: University of Colorado Denver (120 pgs). Available from: [www.assistivetechnologypartners.org](http://www.assistivetechnologypartners.org)

Book Chapters, Invited Articles & Reviews in Non Peer-Reviewed Journals

1. **Waugh, K.** and Crane, B. (2017)Standardized Measures of the Person, Seating System and Wheelchair. In M. Lange and J. Minkel (Ed), *Seating and Wheeled Mobility: A Clinical Resource Guide* (pp.85-119)*.* Thorofare, New Jersey: SLACK Incorporated
2. Lange, M., **Waugh, K.** (2012). Sleep Positioning: Positioning Isn’t Just for Wheelchairs Anymore. *Directions*, publication of the National Registry of Rehabilitation Technology Suppliers, Vol. 2012.6 (28-31). Correction of authorship printed in Vol.2013.1, page 6.
3. **Waugh, K.** (2012). Wheelchair Seating. *PN/Paraplegia News*, July2012 Issue (38-39).
4. **Waugh, K.** (2007*)* On Coverage: Clinicians Must Stay Current on New CMS Guidelines for Powered Mobility. *Advance for Directors in Rehabilitation*, Vol. 16, No.4 (pp 25-28)
5. **Waugh, K.** (2005). Measuring the Right Angle*.* *Rehab Management*, Vol 18, No. 1 (40-47)
6. **Waugh, K.** (1996). Book Review of Special Seating: An Illustrated Guide, by Jean Ann Zollars*.* *Assistive Technology*, Vol.9, No.1

Other Publications, Non-Published Documents, Reports, Research or Policy Papers, Lay Press Articles

*Funded grant proposals:*

1. **Waugh, K.** (2012) *Promoting the adoption of uniform wheelchair seating terminology.* Paralyzed Veterans of America (PVA) Education Foundation Grant #690, submitted 2/1/12. Awarded, 6/1/12 – 5/31/13.
2. **Waugh, K**. Crane, B. (2011) *Development of a clinical guide to wheelchair seating terms and measures*. Paralyzed Veterans of America (PVA) Education Foundation Grant #668, submitted 2/1/11. Awarded, 7/1/2011 – 6/30/12.

*Non-funded grant proposals:*

1. **Waugh, K.** (2014) *A web-based resource center on wheelchair terminology and measurement.* Paralyzed Veterans of America (PVA) Education Foundation Grant, submitted 2/1/14. Not funded.
2. Bach, J., Bodine, C., **Waugh, K**. (2012). *I/UCRC – Seating and Mobility Research Center*, National Science Foundation, I/UCRC Planning Grant Proposal #1266068 ($14, 500). Not funded.
3. Crane, B., **Waugh, K.** (2010) *Development of a clinical guide to wheelchair seating terms and measures*. Paralyzed Veterans of America (PVA) Education Foundation grant, submitted 2/1/10. Not funded.

*ANSI/RESNA Wheelchair seating standards development documents*

1. **Waugh, K.** (2001) *Defining Absolute Angles of Body Segments: How to Determine the Value of the Angle.* ANSI/RESNA Seating Standards Development, Working Group on Terms and Definitions tabled document #WGTD-71, February 2001
2. **Waugh, K.** (2001) *Surface Landmarks to Be Used in Body Segmentation Scheme for 16840-1.* ANSI/RESNA Seating Standards Development, Working Group on Terms and Definitions tabled document # WGTD-70, February 2001
3. **Waugh, K.** (2001) *Annex A Proposed Revision of Tables 1-3.* ANSI/RESNA Seating Standards Development, Working Group on Terms and Definitions tabled document #WGTD-69, February 2001
4. **Waugh, K.** (2001) *ISO/WD 16840-1.6, KW Comments.* ANSI/RESNA Seating Standards Development, Working Group on Terms and Definitions tabled document #WGTD-68, February 2001
5. **Waugh, K.** (2001) *Literature Review of Anatomical Landmarks Used to Measure Body Segment Orientation and/or Anthropometric Dimensions.* ANSI/RESNA Seating Standards Development, Working Group on Terms and Definitions tabled document #WGTD-55, January 2001
6. **Waugh, K.** *Proposed Revision of 16840-1.5, Section 5.2 Body Segment Angle Measures.* ANSI/RESNA Seating Standards Development, Working Group on Terms and Definitions tabled document #WGTD-57, October 2000
7. **Waugh, K.** (2000) Proposed Body Segmentation Scheme for ISO 16840-1: Definitions of Body and Seat Measures*.* ANSI/RESNA Seating Standards Development, Working Group on Terms and Definitions tabled document #WGTD-56, June 2000
8. **Waugh, K.** (2000) *Effect of Axis Coordinate Convention on Positive/Negative Value of Basic Movement Deviations.* ANSI/RESNA Seating Standards Development, Working Group on Terms and Definitions tabled document #WGTD-49, April 2000
9. **Waugh, K*.*** (1999) *Proposed Anatomical Landmarks for Defining Body Segments*. ANSI/RESNA Seating Standards Development, Working Group on Terms and Definitions tabled document #WGTD-24A, September 1999
10. **Waugh, K.** (1999) *Draft Outline for Revision of the RESNA Reference Manual – Standardization of Terminology and Descriptive Methods for Specialized Seating.* ANSI/RESNA Seating Standards Development, Working Group on Terms and Definitions tabled document #WGTD-10, June1999
11. **Waugh, K.** (1998) *Comments on Seating Terminology Manual.* ANSI/RESNA Seating Standards Development, Working Group on Terms and Definitions tabled document #WGTD-4, January 1998
12. **Waugh, K**. (1998) *Proposed Organization of Content for Revised Seating Terminology Manual.* ANSI/RESNA Seating Standards Development, Working Group on Terms and Definitions tabled document # WGTD-3, January 1998
13. **Waugh, K.** (1996) *Seating Terminology – Areas of Concern.* ANSI/RESNA Seating Standards Development, Working Group on Terms and Definitions tabled document # WGTD-1, October 1996

*Lay press articles*

1. **Waugh, K.** (2010) Nighttime Positioning. *CommunicATor*, Winter 2010, Assistive Technology Partners.
2. Lange, M., **Waugh, K***.* (2004). 24 Hour Postural Management*. PM&R Update*,*The Newsletter of the Children's Hospital Physical Medicine and Rehabilitation*. Summer, 2004, Vol 9, Issue 2
3. **Waugh, K.** (1989) Pelvic Positioning in Therapeutic Seating. *Rehab Perspectives*. REHABCO Rehab Equipment, Inc.

Products of Scholarship

1. Crane, B., Cohen, L., Zollars, JA, **Waugh, K** (2015-2017). *Improving SCI quality of life through increased access to clinicians trained in assistive technology.* Subject Matter Expert for this funded Craig E. Neilson Foundation Grant, Sept 2015-Sept 2016. Assisted with curriculum development for an online course intended for Physical Therapy students on topic of wheelchair seating and mobility assessment and prescription.
2. **Waugh, K.** (2015)*New ISO/RESNA Standards for Postural Support Devices: What Should I Know and Why Should I Care?* Developed this webinar under contract with Bodypoint Designs, Seattle, Washington.
3. **Waugh, K.** (2015, 2014, 2011) *Wheelchair Seating For Postural Control and Function*. Revised Course Manual, Assistive Technology Partners, University of Colorado, Denver, Colorado.
4. **Waugh, K.** (2013).*Assistive Technology Partners’ ICF Based Wheelchair Mobility Assessment Tool; Assistive Technology Partners' Severity Modifier Definitions For Moving Around Using A Wheelchair; Assistive Technology Partners' Severity Modifier Definitions For Maintaining Optimal Wheelchair Seated Posture; Assistive Technology Partners' Severity Modifier Definitions For Pain With Wheelchair Use.* Developed these clinical tools to address the new Medicare Functional Reporting Requirements for outpatient therapy services, adapting the requirements for wheelchair seating/mobility services, including a draft of an outcome measurement assessment tool for wheelchair mobility to use in coding a person’s functional mobility impairment level.
5. **Waugh, K.** (2012) *Clinical Aspects of Custom Contoured Seating Online Training – Module I and II.* University of Colorado and Otto Bock Healthcare, *http://academy.ottobockus.com/training/details.aspx?typeID=104&coursetype=2*
6. **Waugh, K.** (2009) *Wheelchair Seating For Postural Control and Function*. Course Manual, Assistive Technology Partners, University of Colorado, Denver, Colorado.
7. **Waugh, K.,** Hobson, D., TerHaar, B., Crane, B.,et al. (2006)  *ISO 16840-1: 2006 Wheelchair Seating - Part 1: Vocabulary, reference axis convention and measures for body segments, posture and postural support surfaces.* Primary contributor to the development of this ISO standard.
8. **Waugh, K.** (2003) *Wheelchair Seating For Postural Control and Function****.*** Course Manual, Milestones Therapy Center, Fort Myers, Florida.
9. **Waugh, K.** *(2003) Addressing the Needs of Individuals with Moderate to Severe Postural Problems.* Course Manual, 2003 Seating and Positioning Advanced Education Series, Professional Services, Otto Bock Healthcare, Minneapolis, MN

Scientific Abstracts Published or Presented at Scientific Meetings

1. **Waugh, K**. (2016) *ISO Performance Standards for Postural Support Devices.* Proceedings of the 32nd International Seating Symposium, pp 179-180.
2. Handa, T., Crane, B., and **Waugh, K**. (2014) *Wheelchair Seated Posture Measurement in a Clinical Setting*. The 30th International Seating Symposium Syllabus Proceedings, pp.44-47.
3. **Waugh, K**., Bach, J. (2014) *Results of a pilot feasibility study to evaluate the accuracy and reliability of seated posture measurement using existing and emerging tools*. The 30th International Seating Symposium Syllabus Proceedings, pp.110-112
4. Bach, J., **Waugh, K**. (2014) *A system for measuring pelvic position using electromagnetic tracking*. Presented at the 30th International Seating Symposium, Vancouver, B.C.
5. Bach, J. **Waugh, K**. (2014) Biomechanics and its application to seating. The 30th International Seating Symposium Syllabus Proceedings, pp.256-259
6. **Waugh, K.** (2013). *Custom Contoured Seating: Ensuring Successful Outcomes*. Proceedings for the 29th International Seating Symposium, Nashville, TN.
7. **Waugh, K**., Crane, B. (2012). *Measuring Wheelchair Seated Posture and Seating Supports: Standardization of Terms and Methodologies*. Proceedings of the 28th International Seating Symposium, Vancouver, B.C.
8. **Waugh, K.** (2012) *A Nighttime Positioning Clinical Service: Preliminary Investigation of Program Characteristics and Benefits.*  Poster Presentation, 28th International Seating Symposium, Vancouver, B.C.
9. **Waugh, K**. (2011) *A Problem Solving Model for Wheelchair Seating Assessment.* Proceedings of the 27th International Seating Symposium,(pp 269-270)
10. **Waugh, K.** (2010) *The importance of body positioning and use of a specialized positioning mattress on sleep behavior of individuals with severe physical disabilities.* Poster Presentation,2010 Annual Winter Pediatrics Poster Session, The Children’s Hospital, Denver, Colorado, January 15, 2010
11. **Waugh, K.** (2009) *The importance of body positioning and use of a specialized positioning mattress on sleep behavior of individuals with severe physical disabilities.* Poster Presentation,Fifth Annual Conference on Pediatric Sleep Medicine, Westminster, Colorado, October 3-4, 2009
12. **Waugh, K**. (2007) *Nighttime Positioning*. Proceedings of the 23rd International Seating Symposium, p151
13. **Waugh, K**. (2005) *Therapeutic Positioning During Sleep*. Proceedings of the 21st International Seating Symposium, p171
14. Crane, B., **Waugh, K***. (2005) International Standard for Postural Measures of a Wheelchair Seated Person*. Proceedings of the 21st International Seating Symposium, pp75-76
15. Crane, B., Minkel, J., **Waugh, K.** (2003) *Clinical Application of the Wheelchair Seating Standards*. Proceedings of the 19th International Seating Symposium, pp133-135
16. Hobson, D., Crane, B., **Waugh, K**. (2001) *Measurement and Recording of Seated Posture: A Work in Progress*. Proceedings of the 17th International Seating Symposium